

Heraclitus on Old and New Months: *P.Oxy.* 3710

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While one recently published papyrus has given us a join of two hitherto separate Heraclitean fragments,<sup>1</sup> another offers an altogether new fragment, some would say two new fragments, of Heraclitus: *P.Oxy.* LIII (1986) 3710, ed. by M. W. Haslam, a second-century commentary on *Odyssey* 20.<sup>2</sup> An attempt to clarify yet another riddle from antiquity's notorious puzzler would seem a proper (however insufficient) tribute to a scholar who has done so much to shed light on ὀσκοτεινός.<sup>3</sup>

The passage in question occurs in the course of a commentary on *Od.* 20. 156, ἀλλὰ μάλ' ἤρι νέονται, ἐπεὶ καὶ πᾶσιν ἑορτή, where Eurycleia tells the maids to get the palace ready for the suitors, who "are arriving early, since there is a festival for all." This festival had already been identified by Philochorus (apud Σ ad loc.) as that of Apollo Noumenios, the celebration of the new month, whose significance for the *Odyssey* has been ably elaborated by Norman Austin.<sup>4</sup> Now we have our newly published

<sup>1</sup> The Derveni Papyrus makes it highly likely that Heraclitus 57 Marcovich (22 B 3 D-K) was followed immediately by 52 M (B 94). Cf. my "Heraclitus in the Derveni Papyrus" (forthcoming); W. Burkert, "Eraclito nel Papiro di Derveni: Due nuove testimonianze," in L. Rossetti (ed.), *Atti del Symposium Heracliteum 1981* (Rome 1983) 37-42; S. N. Mouraviev, "The Heraclitean Fragment of the Derveni Papyrus," *ZPE* 61 (1985) 131-32; D. Sider, "Heraclitus B3 and 94 in the Derveni Papyrus," *ZPE* 69 (1987) 225-28; K. Tsantsanoglou and G. M. Parássoglou, "Heraclitus in the Derveni Papyrus," in *Studi e testi per il Corpus dei papiri filosofici greci e latini* III (Florence 1988) 125-33; eadem, "PDerveni, col. II 1-11," in *Corpus dei papiri filosofici greci e latini* I.1\*\* (Florence 1992) 221-26; A. Lebedev, "Heraclitus in P.Derveni," *ZPE* 79 (1989) 39-47; L. Schoenbeck, "Heraclitus Revisited," *ZPE* 95 (1993) 7-22.

<sup>2</sup> Cf. M. L. West, "A New Fragment of Heraclitus," *ZPE* 67 (1987) 16; S. N. Mouraviev, "P. Oxy. LIII 3710: Les nouveaux fragments d'Héraclite," *ZPE* 71 (1988) 32-34; idem, "Heraclitus 4T," in *Corpus* (previous note) 229-42; W. Burkert, "Heraclitus and the Moon: The New Fragment in *P.Oxy.* 3710," *ICS* 18 (1993) 49-55.

<sup>3</sup> For Miroslav Marcovich's contributions to the study of Heraclitus, see the bibliography in the first part of this Festschrift (*ICS* 18 [1993] 1-17), books nos. 4-9; articles nos. 14, 38, 43, 53, 56, 70-71, 83, 86, 89-90, 93, 96, 133, 138, 154, 198; reviews nos. 2, 5-9, 16-17, 21.

<sup>4</sup> *FGH Hist* 328 F 88 τοῦ δὲ Ἀπόλλωνος ταύτην εἶναι νομίζειν τὴν ἡμέραν εἰκότως τὸ πρῶτον φῶς τῶ αἰτιωτάτῳ τοῦ πυρός, ἐκάλουν τε αὐτὸν καὶ Νεομήνιον. ἡ ἱστορία παρὰ Φιλοχόρῳ. Philochorus wrote *Περὶ ἡμερῶν Ἡλίου καὶ Ἀπόλλωνος* (Σ Hes. *Op.* 768). Cf. also Σ Pi. N. 3. 4 αἱ τῶν μηνῶν ἀρχαὶ ἱεραὶ εἰσι τοῦ Ἀπόλλωνος; Haslam, *P.Oxy.* LIII (1986) 106 f.; N. Austin, *Archery at the Dark of the Moon* (Berkeley 1975) 245-52. See also J. Russo's commentary ad *Od.* 20. 156 and Mouraviev, *Corpus* (above, note 2) 232 f.



Thales said that the sun is eclipsed<sup>7</sup> when the moon comes in front of it, the day being marked (by occultation?),<sup>8</sup> in which (*sc.* day) the (solar) eclipse occurs, which some call the thirtieth and others the new moon.<sup>9</sup>

What follows calls for further discussion. Haslam ([above, note 4] 106) offers the following: "When the moons/months meet, it changes days—day before, new-moon, second (?)—sometimes fewer, sometimes more, from the moment it appears." What the two "it"s refer to remains cloudy. West prefers to emend προτέρην νουμηνίην to προτέρη νουμηνή and to supply ἐξ before δευτέρην: "As the monthly conjunctions (*sc.* of moon with sun) occur, it changes (or: there is a change in) the number of days from the appearance of one new moon to the next, (so that there are) sometimes fewer, sometimes more." West thus agrees with Haslam that the fragment refers to the differing number of days from one month to the next, but, as we shall see, the words προτέρη and δευτέρη together in a context such as this almost certainly refer to individual days rather than months (although it is true that Ar. *Eq.* 43 τῆ προτέρᾳ νουμηνίᾳ means "at the last νουμηνία," i.e. "on the first of this month"). Idiomatic Greek, moreover, would prefer to use two forms of ἕτερος rather than "former" and "second" to express what West finds in these words.

Mouraviev, convinced by Merkelbach that the lacuna in line 44 contained two letters,<sup>10</sup> translates first in French (1988) and then in Italian (1992), with no difference in meaning, as follows: "All'incontro dei mesi (il corno lunare) non appare per tre giorni di seguito: la vigilia, la neomenia, l'indomani. Talora si trasforma in meno giorni, talaltra in più giorni." With "corno lunare" Mouraviev refers to the near-universal custom among those who adhere to strict lunar months of waiting to see the first lunar crescent after a new moon before declaring that evening the start of the next month, whose first day is called νουμηνία. Mouraviev thus makes the point of the

<sup>7</sup> The unanswered μέν and ἔφη τε . . . ὅτι ἐκλείπειν suggest that our commentator has crudely excerpted from his source, perhaps Aristonicus; cf. L. Cohn, "Aristonikos 17," *RE* II.1 (1895) 964–66; G. S. Kirk, *The Iliad: A Commentary I* (Cambridge 1985) 38–41. For Thales in this commentary, see A. Lebedev, "Aristarchus of Samos on Thales' Theory of Eclipses," *Apeiron* 23 (1990) 77–85; D. Panchenko, "Thales and the Origin of Theoretical Reasoning," *Configurations* 1 (1993) 387–414, esp. 394–404.

<sup>8</sup> "The day being marked" seems to fit the context better than "(Thales) inferring . . . from the day." Traces of iota before τῆς are clear, so that a third-declension dative noun is very likely. For Haslam's suggested κρύψει, note this same papyrus column, lines 48–49 ἀποκρύπεται μὲν ἡ σελήνη, and cf. LSJ s.v. κρύψω and Archil. fr. 122. 2–4 W Ζεὺς . . . / ἐκ μεσαμβρίας ἔθηκε νύκτ', ἀποκρύψας φάος / ἡλίου. Also fitting the traces is τι. In either case, Burkert's and Lebedev's restorations cannot work.

<sup>9</sup> Does Aristarchus' knowledge of Thales' statement derive from Heraclitus, who, according to Diogenes Laertius 1. 23, credited Thales with being the first astronomer?

<sup>10</sup> The accompanying plate in *P. Oxy.* seems to favor Haslam's reading over Merkelbach's. Not only does the letter look more like a tau than a gamma, there is no trace of the bar over the letter which would mark it as a numeral, as is found elsewhere in this papyrus.

fragment not the shifting number of days per month, but the varying number of days during which the moon is dark.<sup>11</sup>

Haslam's translation is (as West points out) not clear; Mouraviev's version, however, although a straightforward rendering of his text, presents a more scientifically minded Heraclitus than we find anywhere in his fragments. It is true that Heraclitus in his indisputable remains does discuss various meteorological and cosmological phenomena, but always, it seems, in the service of some larger epistemological or political purpose. (The river fragment is not intended to further the study of potamology.) More particularly, one misses in both Haslam's and Mouraviev's versions any hint of Heraclitus' riddling style, which pervades the extant fragments.<sup>12</sup>

Retaining Haslam's [ὅ]τοῦ, then, I would like to argue for an interpretation of this new fragment which views its style and point as typically Heraclitean. To begin, we should note that the fragment seems concerned with alteration and the ambiguity of naming, two pervasive concerns of Heraclitus elsewhere.<sup>13</sup> In this case, Heraclitus exploits the inherent potential for confusion in naming days towards one month's end and the beginning of the next. Possible sources of confusion are: (i) One could never be absolutely sure at the beginning of a true lunar month how many days it would contain. Although there tends to be a regular alternation of 29- and 30-day months, two or more consecutive 29-day or 30-day months are possible.<sup>14</sup> (ii) A cloudy 29th night of a month following a 29-day month will induce people to assume that there is still one more day before the next month—mistakenly so in the case of two 29-day months (Samuel *ibid.*). (iii) The nomenclature of the days of the month's last decad, which is almost universally a backward count after day 21, produces a skipped day almost every other month. That is, day 21 = day 10 of the waning month, day 22 = day 9 of the waning month . . . day 28 = day 3 of

<sup>11</sup> Cf. A. E. Samuel, *Greek and Roman Chronology* (Munich 1972) 14 f.; O. Neugebauer, *The Exact Sciences in Antiquity*, corrected 2nd ed. (New York 1969) 106–10; W. K. Pritchett, *The Choiseul Marble* (Berkeley 1970) 66–73; *idem*, "The Calendar of the Gibbous Moon," *ZPE* 49 (1982) 243–66; J. A. Walsh, "The Omitted Date in the Athenian Hollow Month," *ZPE* 41 (1981) 107–24.

<sup>12</sup> Still less of Heraclitus' style is to be found in col. iii. 7–11 of this papyrus, which West, on the basis of Ionic forms alone, tentatively suggested was a second quotation: μεις τρι[ταῖος] (τρι[τή] Mouraviev) φαινόμενος ἑκκαίδ[ε]κάτη πασσέληνος φαίνεται ἐν ἡμέρ[ησι] τεσσαρεσκαίδεκα· ἀπολιμπάνει τὸ[ν] ὑπόμετρον ἐν ἡμέρῃσι ιγ'. Mouraviev, *Corpus* (above, note 2) prints this as a continuation of Heraclitus' words in col. ii, and Burkert too considers it Heraclitean, but in a lemma in which the commentator seems to quote a new authority with each new sentence, there is no pressing reason to believe that yet another citation pertaining to months and days derives from Heraclitus. There are too many authors who wrote in Ionic on scientific matters for dialect alone to count for much. Moreover, this sentence is more concerned with particular numbers than Heraclitus shows himself elsewhere: "The moon, appearing on the third day, appears as a full moon on the 16th, within 14 days; it leaves the rest (to change) in 13 days" (tr. Burkert [above, note 2] 52).

<sup>13</sup> Cf. e.g. 39 M = B 48, 45 M = B 23, 50 M = B 15, 84 M = B32, 92b M = B 82.

<sup>14</sup> Samuel (above, note 11) 14 f. Consider e.g. the year 1994, in which the number of days between new moons is as follows: 30, 30, 29, 30, 30, 29, 30, 29, 29, 30, 29, 30.

Day                      Full Month                      Hollow Month

28	τρίτη φθίνοντος	
29	δευτέρα φθίνοντος	ἔνη καὶ νέα
30	ἔνη καὶ νέα	
1	νουμηνία	
2	δευτέρα	

## ATHENS

28	τρίτη ἀπιόντος	
29	προτριακάς	τριακάς
30	τριακάς	
1	νευμεινίη	
2	δευτέρα	

## BOEOTIA

28	λοιπῶν τριῶν	
29	λοιπῶν δύο	—
30	ὑστέρα, ὑστέρα ἓνα καὶ νέα, ὑστερομεινία	
1	νουμηνία	
2	δευτέρα	

## THESSALY

28	τρίτη ἀπιόντος	
29	δευτέρα ἀπιόντος	ἔνη καὶ νέα
30	ἔνη καὶ νέα	
1	νουμηνία	
2	δευτέρα	

## DELOS

28	τρίτη ἐξ ἱκάδος	
29	προτριακάς	τριακάς
30	τριακάς	
1	νουμηνία	
2	δευτέρα	

## RHODES

Table 1

## Ends and Beginnings of Representative Greek Months

See further A. E. Samuel, *Greek and Roman Chronology* (Munich 1972) 59–61, 69, 86–87, 100–01, 110.

the waning month. The next day, however, is either day 2 of the waning month (in a full, i.e. 30-day month), followed by (in Athens, e.g.) old-and-new day or (in a hollow, i.e. 29-day month) day 28 is followed immediately by old-and-new day. See Table 1.

Thus, the uncertainty as to the number of days in a month mentioned above comes to a head on day 29. You and I can wake up towards the end of a month not thinking or even caring about whether this particular month has 30 or 31 days; at least we know that today is the 30th and will remain so until midnight. And if it is a 30-day month, we do not feel that a day is missing. A Greek, on the other hand, wakes up on the 29th not knowing whether by sunset, when official watchers look for the crescent of the new moon, the day will have changed names from (however it is expressed in his particular city) "the day before the last day of the month" to "the last day of the month." And because of the prevalent Greek custom of counting days backward after the twentieth, with the countdown aimed at the thirtieth day, a 29-day month was strongly felt to be curtailed, or rather "hollow," κοῖλος (Geminus 8. 3).

This situation is ripe for exploitation by either a comic poet or a philosopher interested in alteration and underlying *logos*. We see the former in Aristophanes, *Clouds* 1178 ff., where Pheidippides instructs his father in the absurdity of naming one day as though it were two, *sc.* old-and-new day. Since this was the day debts became due, Strepsiades would be especially anxious waking up, as indeed he does as the play opens, on the day after the 28th (cf. lines 1–3, 16 ff.).<sup>15</sup> We see the latter in our new Heraclitus fragment, with the further complication that he also considers those months in which the moon is not only new but falls directly between earth and sun to produce a solar eclipse. Why he would do so has been hinted at above and expressed more clearly by Burkert ([above, note 2] 54), when he says that "what is specifically Heraclitean is that both should be in view, the change [*sc.* in the number of days] and the *logos*," and goes on aptly to compare the river fragment, where Heraclitus alludes to the simultaneous constant alteration and underlying unity which is most easily seen in rivers but which characterizes all else in the cosmos.

I agree with Burkert in his overall assessment of the meaning of our new fragment. There may be, moreover, yet another way in which it may be said to be specifically Heraclitean; that is, its peculiar style, more specifically its word order, seems designed to reproduce the very alteration which it describes. Let us begin by noting that in every epigraphic count of days known to us there is no *calendric* confusion between τριακάς (or however the last day of the month is designated) and νομηνία, the first day of the next month. The shift in days' names toward the end of the month as

<sup>15</sup> Walsh (above, note 11) argues that in Athens the omitted date was the 21st (δεκάτη φθίνοντος) rather than (as Samuel and Pritchett argue) the 29th, but—even if he is correct—the ambiguity of ἔνη καὶ νέα remains.

described above is only part of the story, for not only can the second day from month's end come to be called the last day, but the last day itself, in both hollow and full months, since the evening's crescent moon signals a new month, shares in both months. As Aristarchus says, there is a day-long period of time called both *τριακάς* and *νουμηνία*. To be more precise, the last day becomes *νουμηνία* at sunset, as spelled out by Σ Ar. Nu. 1179β ἔνη μὲν ἡ τριακάς, νέα δὲ ἡ νουμηνία.<sup>16</sup> It may be that the exceptional circumstance of a solar eclipse advanced the change in names by several hours. But in any case, a day could begin as *τριακάς* and then be declared a "new moon" day. The new calendar month, however, would begin the next day, and it too would be called, as usual, *νουμηνία*. In evidence of which Aristarchus cites Heraclitus, understanding him, I believe, to be referring to the existence of two successive days called *νουμηνία* (more precisely, part of one day after sunset and all of the next day).

Before we apply these facts to the new fragment, we should also remind ourselves that Heraclitus several times uses an ἀπὸ κοινοῦ construction to reinforce his philosophical point. As I argued in an earlier article,<sup>17</sup> the following fragments should be read with the underlined words taken ἀπὸ κοινοῦ with what precedes and what follows:

1 M (B 1) τοῦ δὲ λόγου τοῦδ' ἐόντος αἰεὶ ἀξύνετοι γίνονται ἄνθρωποι κτλ.

40 M (B 12) ποταμοῖσι τοῖσιν αὐτοῖσιν ἐμβαίνουσιν ἕτερα καὶ ἕτερα ὕδατα ἐπιρρεῖ.

86 M (B 5) καθαίρονται δ' αἵματι μαινώμενοι.

94 M (B 119) ἦθος ἀνθρώπων δαίμων.

These examples suggest a complex way of reading the three words at the center of the new fragment. First, as an asyndetic listing of three days which end one month and begin the next:

(i) *πρωτέρη*, a generic term to describe the day before the end of the month; cf. the terms *πρωτριακάς* (Boeotia, Rhodes, Cos) and, even more telling, *πρὸ νεομηνίας* (Thasos).<sup>18</sup> This term, as illustrated in Table 1, not only differs from city to city; it can itself undergo alteration within a 24-hour period during a hollow month.

(ii) *νεομηνία*, the first day of the new month.

(iii) *δευτέρη*, the second day of the new month.

Simultaneously the same three words, with the middle term taken ἀπὸ κοινοῦ, can refer to the *two* successive days called *νουμηνία*:

<sup>16</sup> Cf. also Σ Ar. Nu. 1134c ἔνη τε καὶ νέα· ἡ νουμηνία; Σ Demosth. 21. 297 τὴν τελευταίαν ἡμέραν . . . , ἦν τινες ἔνην καὶ νέαν, τινὲς δὲ νουμηνίαν ὀνομάζουσιν; Plut. Sol. 25.

<sup>17</sup> "Word Order and Sense in Heraclitus: Fragment One and the River Fragment," in K. Boudouris (ed.), *Ionian Philosophy* (Athens 1989) 363–68.

<sup>18</sup> *JG XII Suppl.* 347. 2; Samuel (above, note 11) 130.

- (i) προτέρη νουμηνίη.  
 (ii) νουμηνίη δευτέρη.<sup>19</sup>

Read thus, the sentence effectively mirrors the situation it describes as the names for days overlap and shift in meaning and number just as the days themselves do. The overlapping boundaries between months may make for difficulties in observation and nomenclature, but the underlying pattern of day following day remains, even when disrupted by a solar eclipse. With Burkert, we can note how this fragment fits in with other astronomical fragments pertaining to boundaries between day and night (52 M = B 94 [see above, note 1], 60 M = B 99, 62 M = B 120); equally suggestive, especially given its first word (συνιόντων), is its similarity to 25 M = B 10: συλλάψεις· ὅλα καὶ οὐχ ὅλα, συμφερόμενον διαφερόμενον, συνᾶδον διᾶδον· ἐκ πάντων ἐν καὶ ἐξ ἐνὸς πάντα.

Translation of the new fragment still presents difficulties, perhaps, as Haslam suggests, because of faulty transmission; a minimal change would be to read μεταβάλλεσθαι for μεταβάλλεται, which could have been written by the scribe under the influence of the nearby φαίνεται. Or the text may be sound but the subject of φαίνεται has been obscured by the fragment's being wrenched out of context. The sense seems to be something like the following:<sup>20</sup> "When months come together the days since it (*sc.* the moon) appears—prior νουμηνία (and) second—sometimes changes (to) fewer, sometimes (to) more."

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<sup>19</sup> This seems preferable to regarding δευτέρην as an example of "expressive asyndeton" (Burkert [above, note 2] 52 n. 18).

<sup>20</sup> Cf. Pl. *Gorg.* 581e ἄνω καὶ κάτω μεταβαλλομένου, which may be an echo of Heracl. 56ab M (B 84ab), where the sources mention Heraclitus' ἄνω κάτω road along with his words μεταβάλλον ἀναπαύεται.

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